

Figure 1

Operation	Stage 1	Stage 2	Stage 3
0	0, 16 , 32, 48	0, 4 , 8 , 12	0, 1 , 2, 3
1	1 , 17, 33 , 49	1 , 5, 9 , 13	4 , 5, 6 , 7
2	2, 18 , 34, 50	2, 6 , 10, 14	8, 9 , 10, 11
3	3 , 19, 35 , 51	3 , 7, 11 , 15	12 , 13, 14 , 15
4	4 , 20, 36 , 52	16 , 20, 24 , 28	16 , 17, 18 , 19
5	5, 21 , 37, 53	17, 21 , 25, 29	20 , 21 , 22, 23
6	6 , 22, 38 , 54	18 , 22, 26 , 30	24 , 25, 26 , 27
7	7, 23 , 39, 55	19, 23 , 27, 31	28, 29 , 30, 31
8	8, 24 , 40, 56	32, 36 , 40, 44	32, 33 , 34, 35
9	9 , 25, 41 , 57	33 , 37, 41 , 45	36 , 37, 38 , 39
10	10, 26 , 42, 58	34, 38 , 42, 46	40, 41 , 42, 43
11	11 , 27, 43 , 59	35 , 39, 43 , 47	44 , 45, 46 , 47
12	12 , 28, 44 , 60	48 , 52, 56 , 60	48 , 49, 50 , 51
13	13, 29 , 45, 61	49, 53 , 57, 61	52, 53 , 54, 55
14	14 , 30, 46 , 62	50 , 54, 58 , 62	56 , 57, 58 , 59
15	15, 31 , 47, 63	51, 55 , 59, 63	60, 61 , 62, 63

↑ 32 ↑ 30a 34 ↑ 30b ↑ 30c

Figure 2

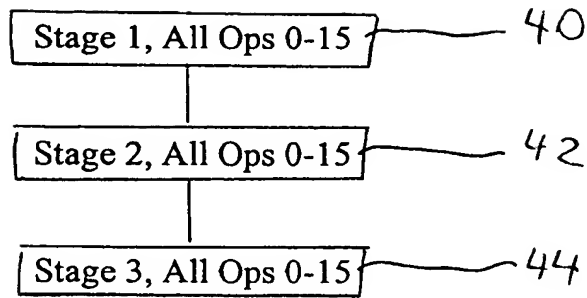


Figure 3A

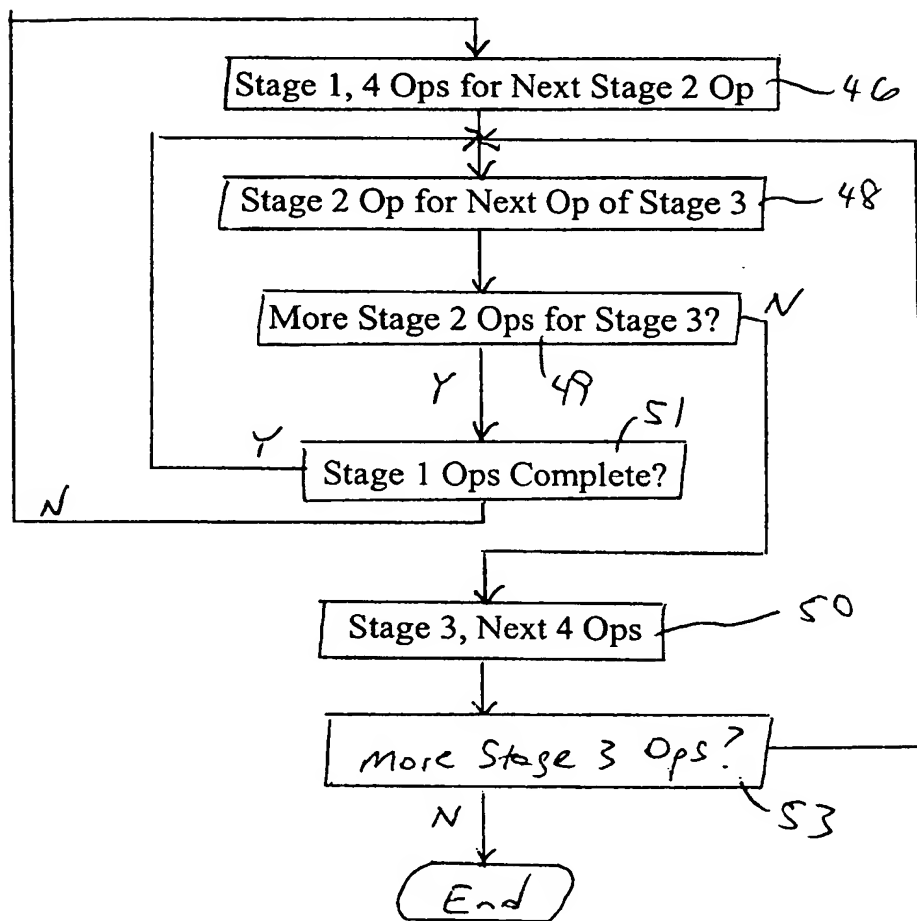


Figure 3B

Bank 1 Read	0	32	17	49	2	34	19	51	20	52	5	...	47	0	8	5	13	2	10	7	...	0	2	5	7	8	10	13
Bank 2 Read	16	48	1	33	18	50	3	35	4	36	21	...	63	4	12	1	9	6	14	3	...	1	3	4	6	9	11	12
Bank 1 Write			0	32	17	49	2	34	19	51	20	...	62	15	47	0	8	5	13	2	...	51	59	0	2	5	7	8
Bank 2 Write			16	48	1	33	18	50	3	35	4	...	46	31	63	4	12	1	9	6	...	55	63	1	3	4	6	9
Stage 1 Op	(0)	(0)	0	(1)	1	(2)	2	(3)	3	(4)	4	...	(15)	15	D	D	D	D	D	D		D	D	D	D	D	D	D
Stage 2 Op														(0)	(0)	0	(1)	1	(2)	2	...	15	D	D	D	D	D	D
Stage 3 Op																						(0)	(0)	0	(1)	1	(2)	2
Clock Cycle	1	2	3	4	5	6	7	8	9	10	11	...	32	33	34	35	36	37	38	39	...	65	66	67	68	69	70	71

Figure 4A

Bank 1 Read	0	32	20	52	8	40	28	60	0	8	17	49	5	27	25	57	13	45	5	9	2	...	0	2	5	7	8	11
Bank 2 Read	16	48	4	36	24	56	12	44	4	12	1	33	21	53	9	41	29	61	1	13	18	...	1	3	4	6	9	10
Bank 1 Write			0	32	20	52	8	40	28	60	0	8	17	49	5	27	25	57	13	45	5	...	7	15	0	2	5	7
Bank 2 Write			16	48	4	36	24	56	12	44	4	12	1	33	21	53	9	41	29	61	1	...	3	11	1	3	4	6
Stage 1 Op	(0)	(0)	0	(4)	4	(8)	8	(12)	12		(1)	(1)	1	(5)	5	(9)	9	(13)	13	(2)	(2)	...						
Stage 2 Op									(0)	(0)	0								(1)	(1)	1	...	3					
Stage 3 Op																						...	(0)	(0)	0	(1)	1	(2)
Clock Cycle	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	...	41	42	43	44	45	46

Figure 4B

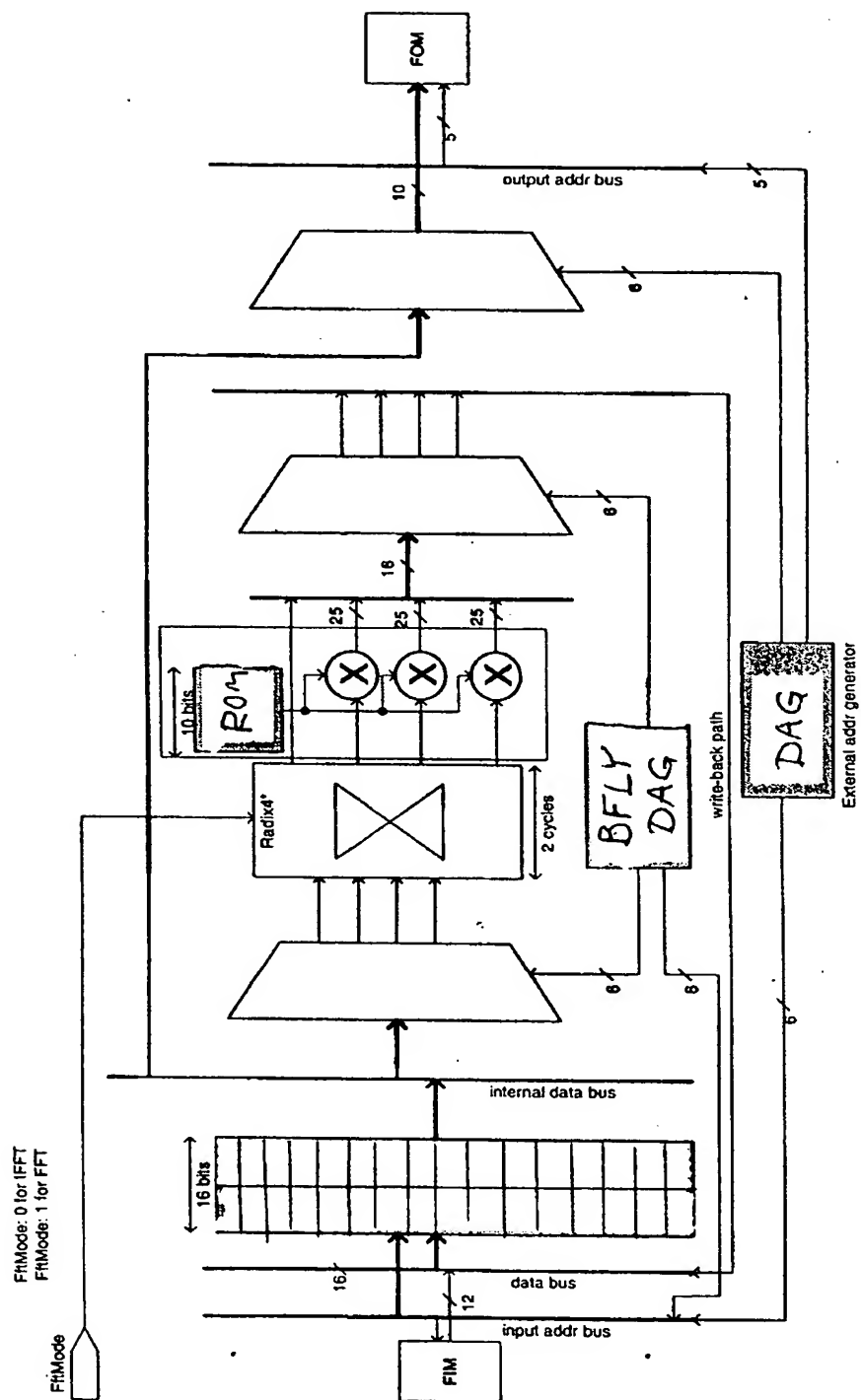


Figure 5